U.S. Department of Defense
Office of the Secretary of Defense

Open Systems Architecture and Data Rights Overview

DOD OPEN ARCHITECTURE TEAM

Nickolas H. Guertin, P.E.
DASN RDT&E
Nickolas.H.Guertin@navy.mil
1 November 2011

Statement A:
Approved for public release

Agenda

- Background
- Open Systems Architectures (OSA)
- Evolving an Open Business Marketplace
- Strategic use of Intellectual Property Data Rights
- Supporting Tools
  - Developing a Business Case
  - OSA Contract Guidebook for PM’s
  - Forge.mil SHARE
  - Understanding the Governments IP License Rights
- Bringing it all together
- Summary

Open Systems Architecture – A Means to an End

- We all want the best possible value to the warfighter
- Competition is a powerful tool to get the best deal from industry.
- Decompose a system into components that can be competed.
- The Government must have the right information to compete
  - Design documentation, interfaces, tools, etc.
  - Information that can be shared with others
  - Competition of components small enough to be risk-prudent
  - Competition scale big enough to bring new innovation
- Competition is only valuable if the incumbent has a risk of loosing
  - We reduce the risk that a new player can win and execute
  - Many examples of programs doing it successfully

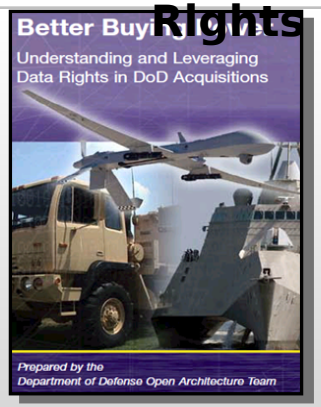
Nuanced understand on how to level the playing field so that we can risk-prudently award to a non-incumbent.

Definitions

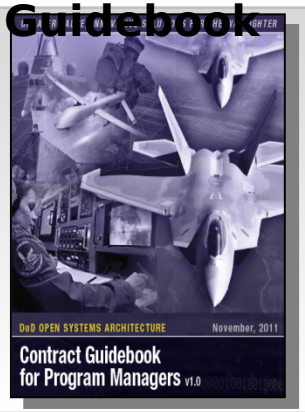
- Open Systems Architecture - technical architecture
  - open standards, publishing of key interfaces, full design disclosure.
  - modular, loosely coupled and highly cohesive system structure. OA includes
- OSA – the Open Business Model.
  - Transparency and leveraging of innovation with collaboration across the Enterprise.
  - Sharing risk, maximized asset reuse and reduced total ownership costs.
- **Tenets of a Successful Open System Architecture**
  - ☐ Added
  - ☐ Modified
  - ☐ Replaced
  - ☐ Removed
  - ☐ Supported
  - ☐ by different vendors throughout the life cycle

Coordinated Suite of Products

Strategic use of IP Rights

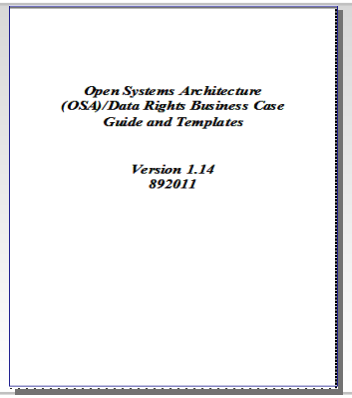

Better Buying Power
Understanding and Leveraging
Data Rights in DoD Acquisitions
Prepared by the
Department of Defense Open Architecture Team

DoD OA Contract Guidebook



DoD Open Marketplace

DoD BCA Guide &



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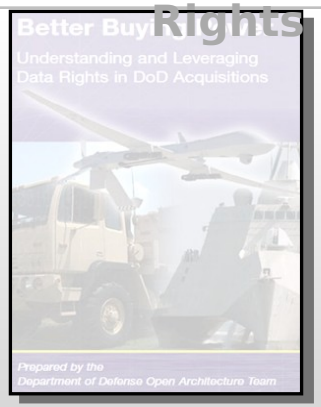

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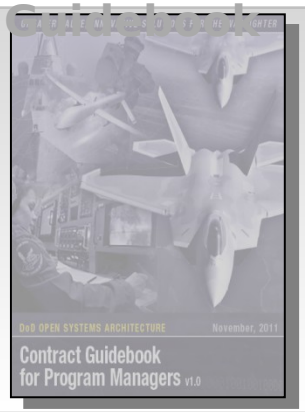
DoD OA Contract Guidebook



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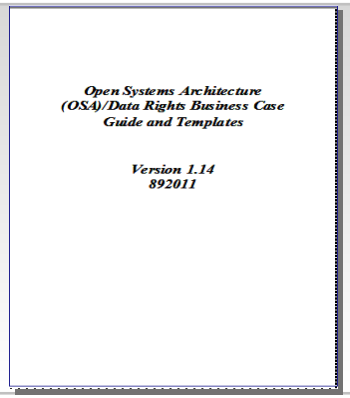
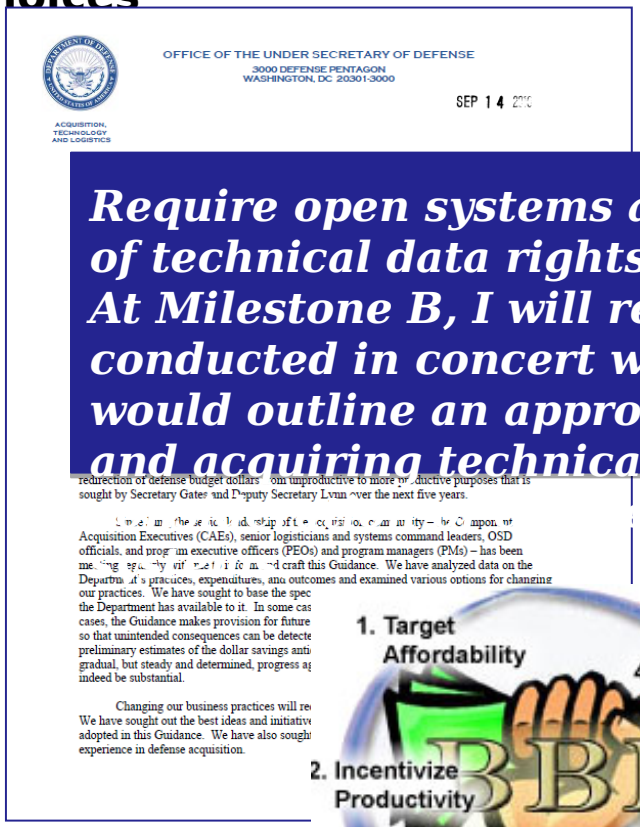
DoD BCA Guide &



The Department is Mandating Business Case Analysis…..

- **To evaluate alternatives and broaden its acquisition choices**



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WASHINGTON, DC 20301-3000

SEP 14 2010

ACQUISITION, TECHNOLOGY AND LOGISTICS

redirection of defense budget dollars from unproductive to more productive purposes that is sought by Secretary Gates and Deputy Secretary Lynn over the next five years.

Acquisition Executives (CAEs), senior logisticians and systems command leaders, OSD officials, and program executive officers (PEOs) and program managers (PMs) – has been meeting regularly with me to help craft this Guidance. We have analyzed data on the Department's practices, expenditures, and outcomes and examined various options for changing our practices. We have sought to base the spec the Department has available to it. In some cas cases, the Guidance makes provision for future so that unintended consequences can be detecte preliminary estimates of the dollar savings anti gradual, but steady and determined, progress ag indeed be substantial.

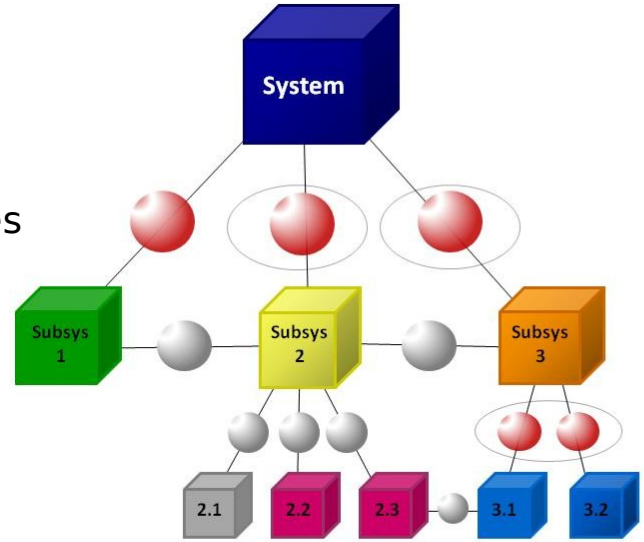
Changing our business practices will re We have sought out the best ideas and initiative adopted in this Guidance. We have also sought experience in defense acquisition.

Require open systems architectures and set rules for acquisition of technical data rights.
At Milestone B, I will require that a business case analysis be conducted in concert with the engineering trade analysis that would outline an approach for using open systems architectures and acquiring technical data rights to ensure sustained

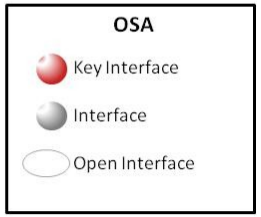
BCAs for Open Systems Architecture and Data Rights are now required

Approach to Developing a Business Case Analysis (BCA)…cont

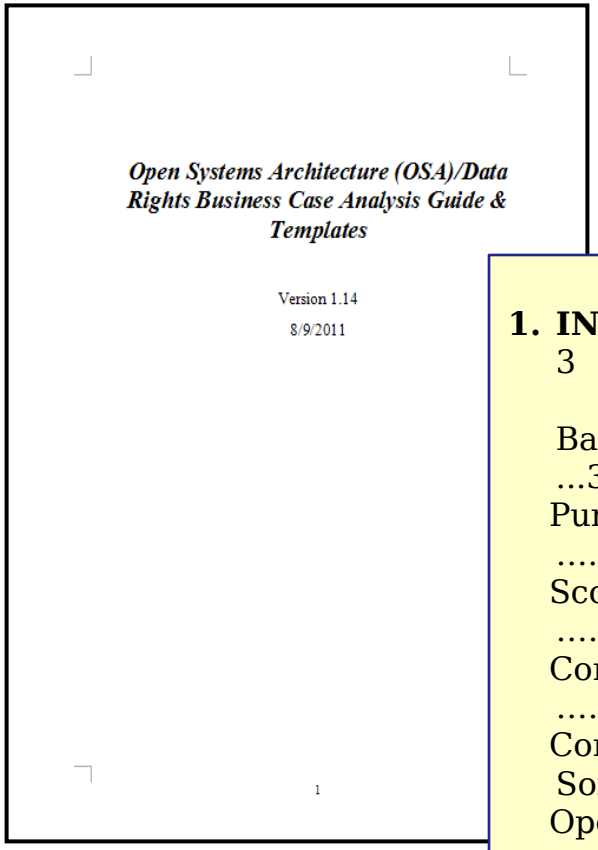
- **Analyze system**
  - What interfaces are open?
  - Are there vendor issues?
  - Does system require s/w updates with threat change?
  - What s/w is imbedded?
  - What rights do we have on subsystems?
- **Tools are available for BCA development**
  - The Open Architecture Assessment Tool (OAAT)
  - Key Open Sub Systems (KOSS) tool to identify alternative states of OSA implementation
  - Numerous resources from the DoD's Data Analysis Center for Software (DACS)



RISK TO COMPETITION/SUSTAINMENT						
Subsystem	Tech Refresh	Changing Threat	Imbedded	Algorithm	Vendor Risk	Open System Architecture
Subsystem 1						
Subsystem 2						
2.1						
2.2	Risk Mitigation Required					
2.3						
Subsystem 3						
3.1						
3.2						



A Guide and Template can Be Used to Build the BCA


Open Systems Architecture (OSA)/Data Rights Business Case Analysis Guide & Templates

Version 1.14

8/9/2011

1

- **BCA Template provides standardized process and methodology**

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APPENDIX A – TOOLS AND

Methods

- Developing a Business Case
- **OSA Contract Guidebook for PM's**
- Forge.mil SHARE
- Understanding the Governments IP License Rights

Coordinated Suite of Products

Strategic use of IP Rights

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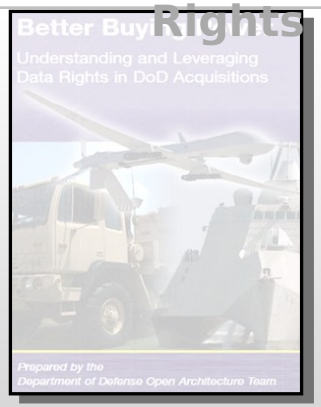

DoD OA Contract Guidebook

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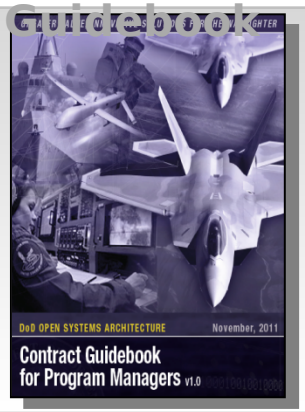

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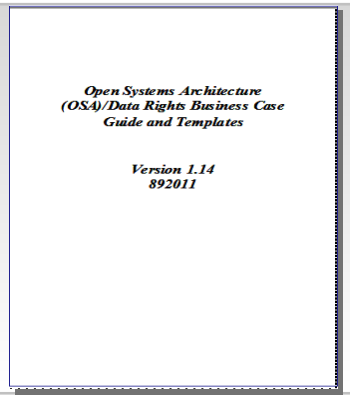
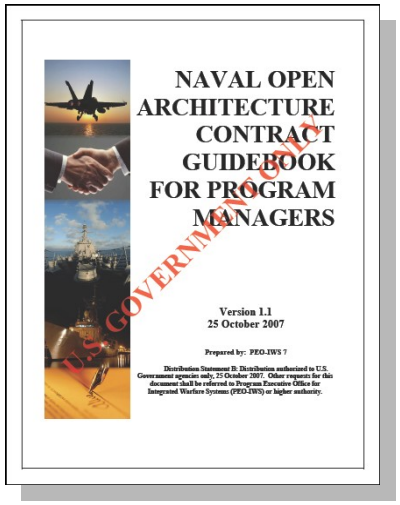
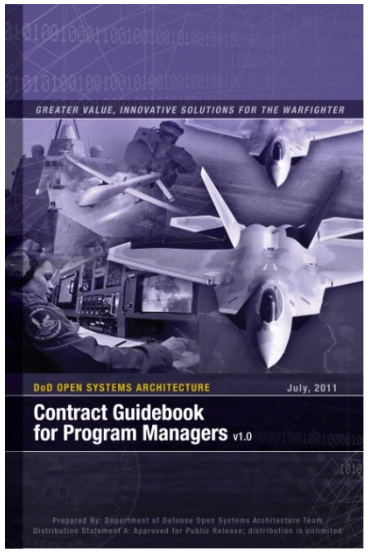


History of the *Contract Guidebook*

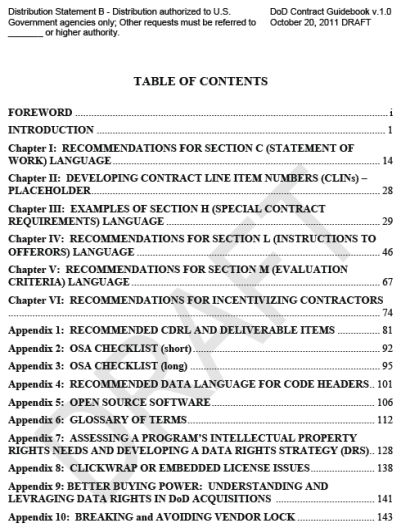
- The *Naval OA Contract Guidebook for Program Managers*, version 1.0, was released on 05 July 2006.
- Since that time, the Guidebook has gone through several iterations and updates.
- In 2010, as part of his “Better Buying Power” initiative, USD AT&L, Ashton Carter took notice of the Navy’s OA Contract Guidebook
- Dr. Carter recommended elevating the Contract Guidebook to be a Joint, DoD-level publication.
- Intended to be a living document, the next spiral of the *OSA Contract Guidebook* will incorporate feedback, lessons learned and best practices from practitioners across DoD’s acquisition community.


NAVAL OPEN ARCHITECTURE CONTRACT GUIDEBOOK FOR PROGRAM MANAGERS
U.S. GOVERNMENT COPY
Version 1.1
25 October 2007
Prepared by: PEO-IWS 7


GREATER VALUE, INNOVATIVE SOLUTIONS FOR THE WARFIGHTER
DoD OPEN SYSTEMS ARCHITECTURE
July, 2011
Contract Guidebook for Program Managers v1.0

Introduction to the *DoD OSA Contract Guidebook*

- The Guidebook is recommended for use by all component Service Program Managers and Contracting Officers.
- For Programs incorporating OSA principles into National Security System (NSS) programs.
- The recommended language should be tailored based on Domain, PEO, or Program-specific requirements.
- The Guidebook is divided into six chapters of suggested contract language for Sections C, H, L, and M, CLINs and Incentive Plans.
- Additionally, there are 11 Appendices on various topics, including CDRLs, intellectual property rights, peer reviews specification language and breaking vendor lc



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DoD Contract Guidebook v.1.0
October 20, 2011 DRAFT

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Methods

- Developing a Business Case
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- **Forge.mil SHARE**
- Understanding the Governments IP License Rights

Coordinated Suite of Products

Strategic use of IP Rights

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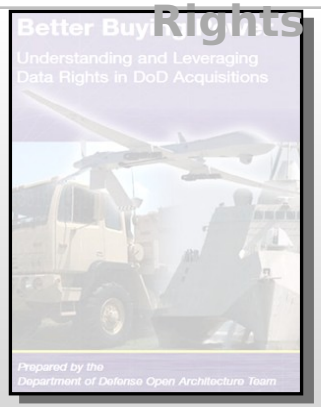

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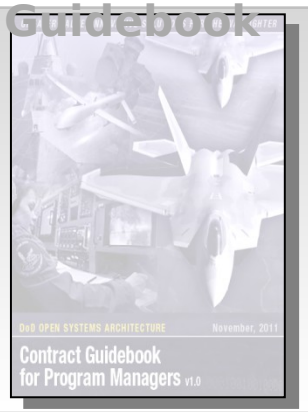

DoD Open Marketplace

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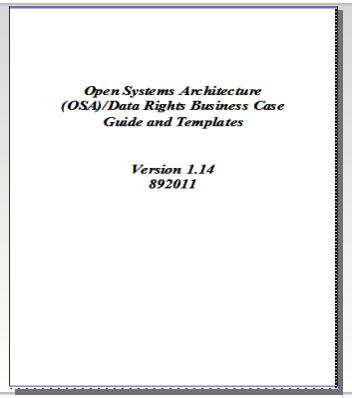


Forge.mil Marketplace Success

Free Flow of Information:

- Allows users to communicate and share info on DoD systems

Intellectual Property:

- Manages government rights to data

Increasing competition:

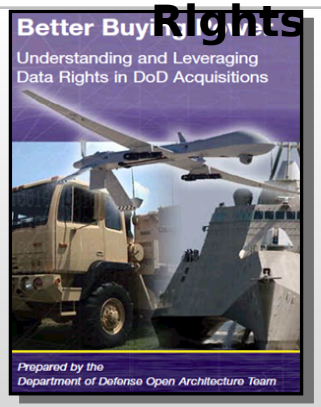
- Drives cost savings and quality

Trust Between Participants:

- Enforces both ethical and legal standards

Coordinated Suite of Products

Strategic use of IP Rights


Better Buying Power
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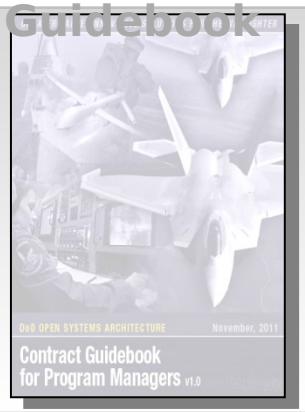

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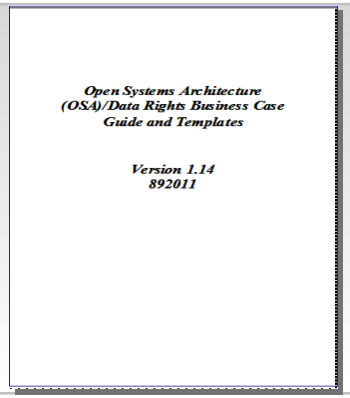
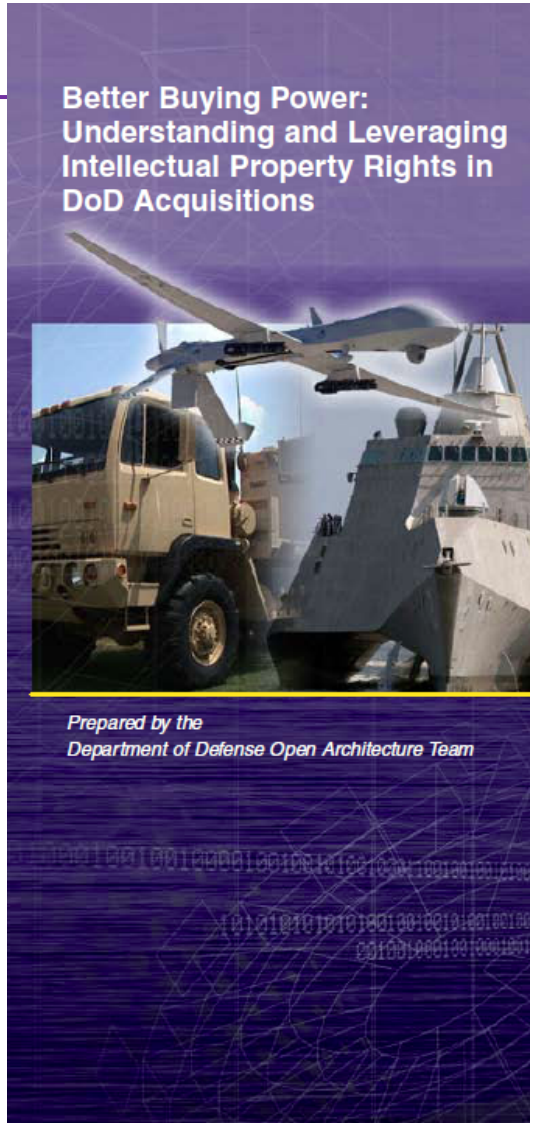


Types of Data Rights

- Unlimited Rights (UR)
- Government Purpose Rights (GPR)
- Limited Rights (LR)
- Restricted Rights (RR)
- Negotiated License Rights
- SBIR Data Rights
- Commercial TD License Rights
- Commercial CS Licenses



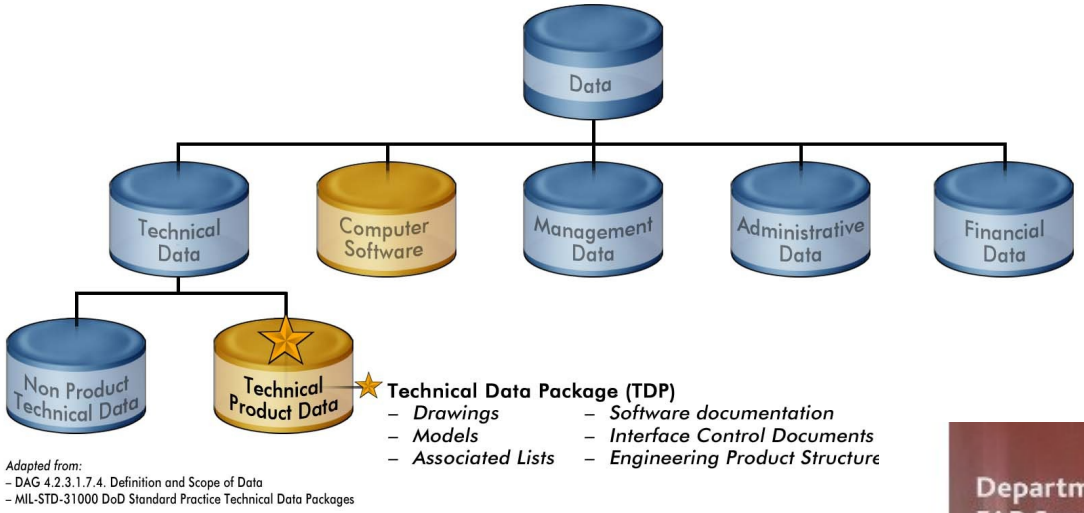
US Law and DOD Guidance…Not New, Renewed Emphasis

Law, Policy, Guidance	Relevant Text
§ 2320. Rights in Technical Data	Assess the long-term technical data needs of such systems and subsystems and establish corresponding acquisition strategies that provide for technical data rights needed to sustain such systems and subsystems over their life cycle.
DODI 5000.02 Operation of the Defense Acquisition System	Program Managers for ACAT I and II programs, regardless of planned sustainment approach … shall assess the data required to design, manufacture, and sustain the system, as well as to support re-competition for production, sustainment, or upgrades.
Implementation Directive for Better Buying Power Dr. Ashton B. Carter, Under Secretary of Defense for Acquisition, Technology & Logistics	The business case analysis will outline the open systems architecture approach, combined with technical data rights the government will pursue in order to ensure a lifetime consideration of competition in the acquisition of weapon systems.

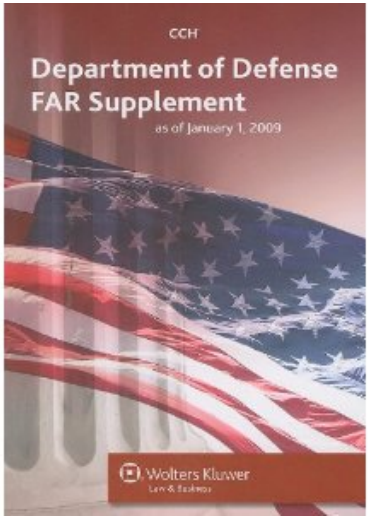
Implementation Directive for Better Buying Power Dr. Ashton B. Carter, Under Secretary of Defense for Acquisition, Technology & Logistics	The business case analysis will outline the open systems architecture approach, combined with technical data rights the government will pursue in order to ensure a lifetime consideration of competition in the acquisition of weapon systems.

What are Data Rights?

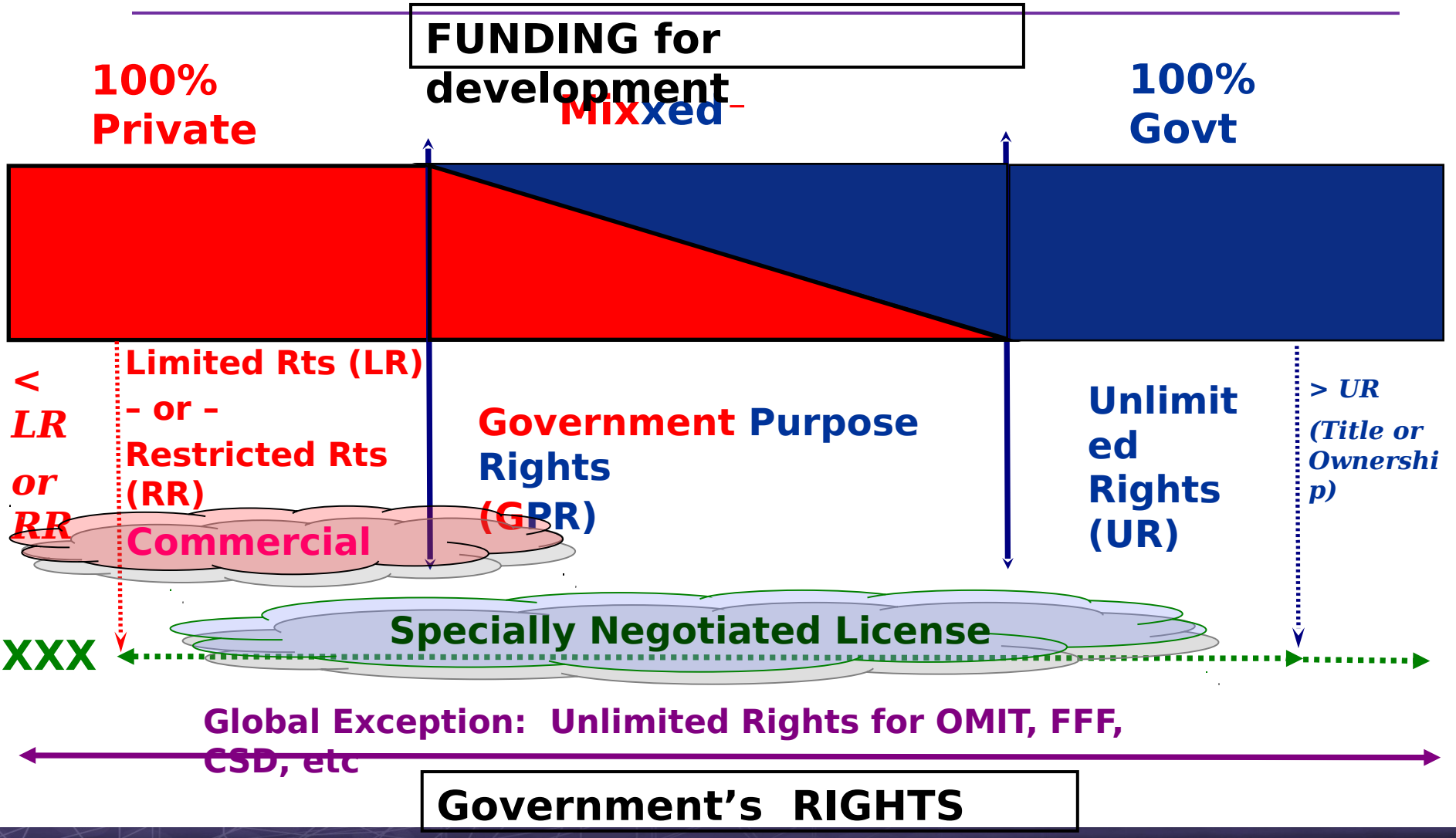
- **Data rights are granted to the Government for technical data and computer software**



- **Defense Federal Acq Regulations Supplement (DFARS)**
  - Rights granted to the Govt depend on the nature of the data (FFF,OMIT)
  - Source of funding of the item, process, or computer s/w (e.g., 100% Government, 100% private, or mixed);
  - Whether the Govt secured data rights through other agreements (e.g., Cooperative Research and Development Agreements).



License Rights in TD & CS

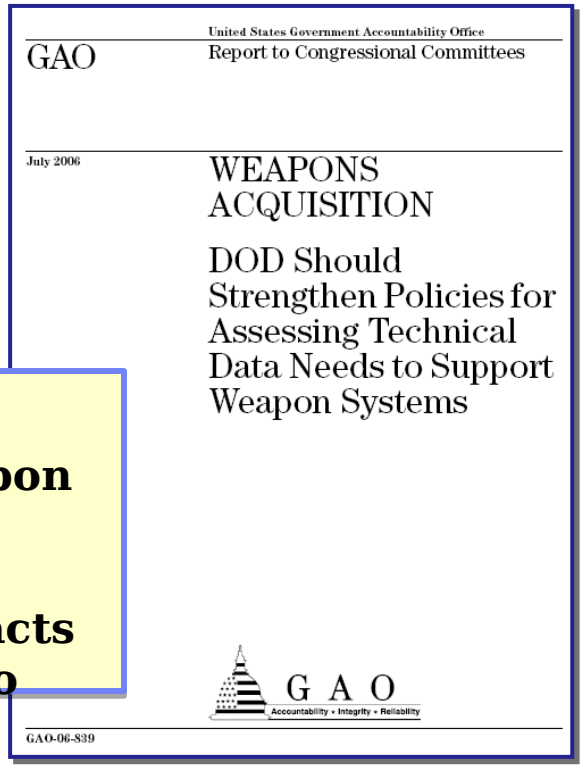


Why are OSA/Data Rights Important?

- **Data rights decisions made during the initial acquisition can have far-reaching implications over the system's life cycle:**
  - Maintain potential for competition
  - Flexibility in logistical support
- **Also, Will enable DoD to:**
  - Take advantage of emerging technologies
  - Quickly introduce new capabilities to warfighters
  - Reduce costs over the life cycle of the Program

…Services encountered limitations in sustainment plans for some fielded weapon systems…lack of data rights.

…60% of 47 non-competitive DoD contracts could not be competed…lack of access to data


United States Government Accountability Office

GAO

Report to Congressional Committees

July 2006

WEAPONS ACQUISITION

DOD Should Strengthen Policies for Assessing Technical Data Needs to Support Weapon Systems

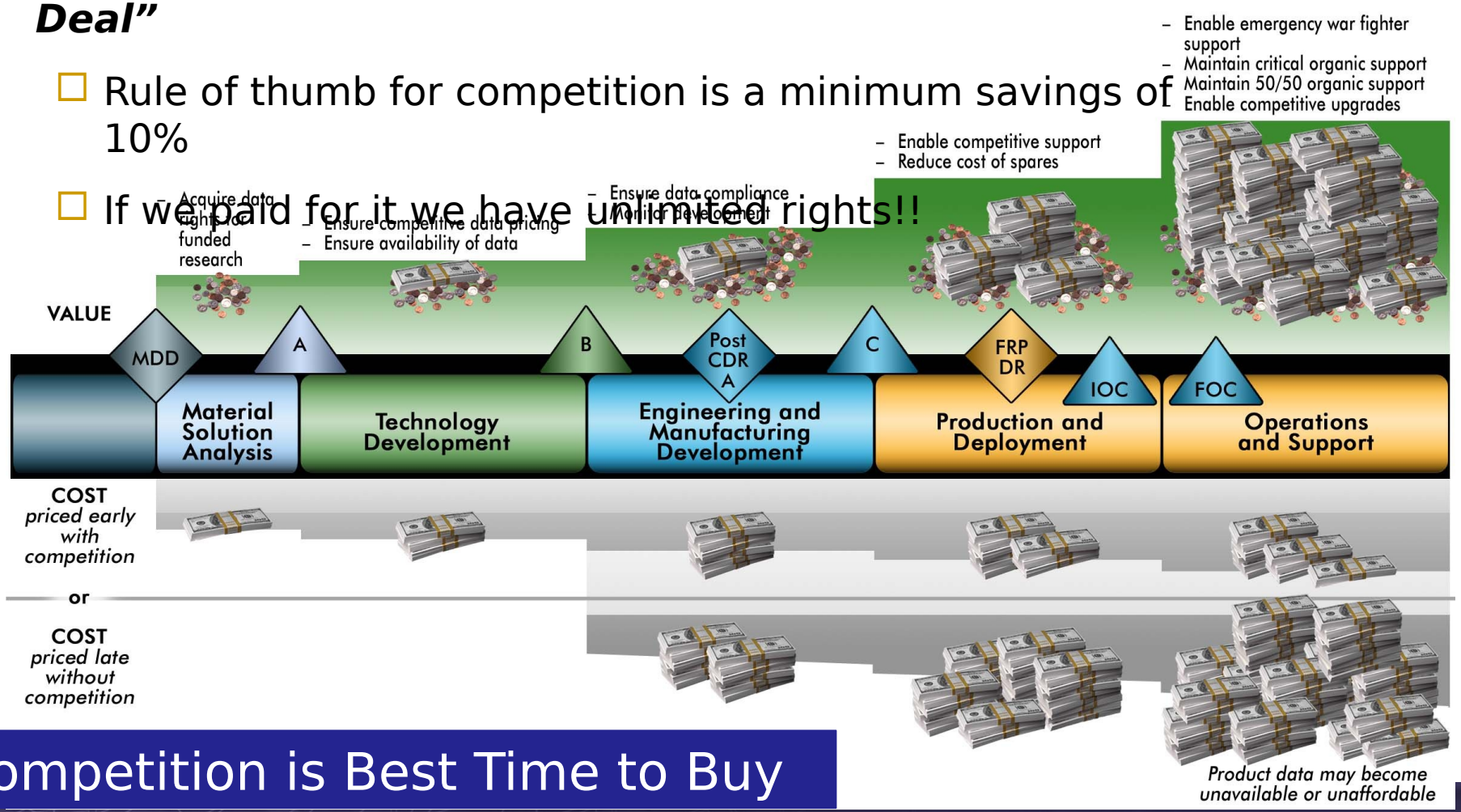
GAO

Accountability • Integrity • Reliability

GAO-06-839

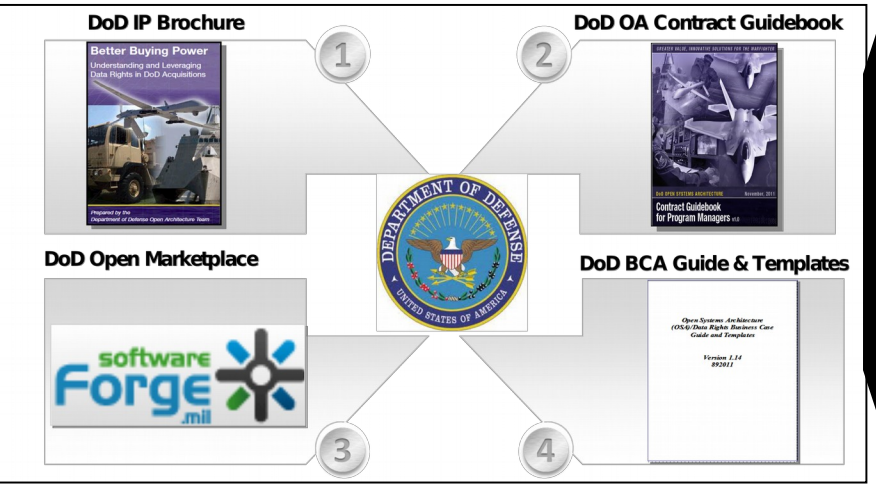
Best Time to Acquire Data Rights?

- **Data rights – may be expensive, but in a competitive environment may be able to make a good *"Business Deal"***
  - Rule of thumb for competition is a minimum savings of 10%
  - If we paid for it we have unlimited rights!!



Competition is Best Time to Buy

Rollout Strategy Elements



- Build Awareness and Obtain Leadership Sponsorship
- Communicate
- Conduct Training
- Institute Feedback Mechanisms
- Conduct Progress Evaluations

→ Maximize Usage of Products

Breaking Vendor Lock

Agenda

- What is Vendor Lock?
- Roadmap Outlining Approaches to Breaking Vendor Lock
- React to a Crisis and Create an Environment for Change
  - Case Study: PEO Subs Acoustic Rapid COTS Insertion Program
- Leverage and Exercise Data Rights
  - Case Study: ONR SEWIP Program
- Change approach to Systems Engineering
- Hold Competition
  - Case Study: Unmanned Aircraft Systems Control Segment Working Group
- Incentivize Good Behavior
- Change Contracts

What is Vendor Lock?

Definition

Vendor Lock is…

- Where acquisition choices are limited and an organization becomes dependent on a single manufacturer or supplier for product(s) and/or service(s)

- The organization cannot effectively compete the associated work to another vendor without unacceptable costs and/or inconvenience

Approaches to Breaking Vendor Lock

ablish a Crisis and an Environment for Char

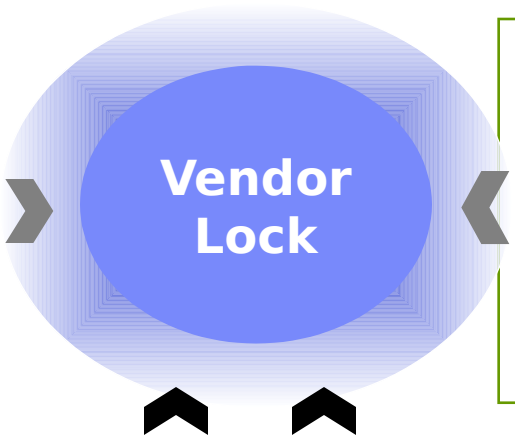
- Publish the intent to compete
- Establish Gov't/Industry/Academia forum
- Establish a Flexible Contracting

Leverage and Exercise Data Rights

- Assess what you have/need
- Require delivery of non-delivered CDRLs and assert data rights

hange approach to System ngineering

- Develop a common architecture across a product line or similar Programs of Record
- Functionally decompose legacy Programs



Hold Competition

- Create an alternative
- Limit Integrator role
- Share GPR for next competition
- Inject OSA through technical insertions
- Use Government Labs for Integration

Incentivize Good Behavior

- Vendor-to-vendor cooperation as part of past performance evaluation

Change Contracts

- Incentive fees
- Include OSA as part of evaluation
- Reward reuse in evaluation Criteria

Establish a Crisis and Create an Environment for Change

Opportunity

Actions

Reacting and Creating a Crisis

Development of a crisis in the marketplace will dramatically change the competitive landscape of a program and force Program Manager's to seek-out new solutions

Publish the intent to compete

- Compete for system upgrades, technology insertion, operations and maintenance support, training, etc.
- A credible threat may motivate an incumbent

Establish Gov't / Industry / Academia forum

- Put the incumbent and its current business practices under scrutiny

Establish a Flexible Contracting Approach

- Ensure contracts and acquisition organizations are modular in nature

Case Study: PEO Subs Acoustic Rapid COTS Insertion Program

- In 1995, the U.S. Navy faced a serious crisis…
- The Program Executive Office for Subs adopted an OA approach for sonar which resulted in:
  - Modularized the sonar system;
  - Disclosed designs of the architecture;
  - Published interfaces, and;
  - Increased competition.

- ARCI generated significant large cost savings:
  - A reduction in Development and Production costs by a factor of six;
  - A reduction in Operating and Support costs by a factor of eight.

- ARCI realized over $25 million in cost avoidance for logistics support, including:
  - Over $1 million in technical manuals;
  - Over $2 million in direct vendor delivery;
  - Over $19 million in interactive, multimedia instruction;
  - Over $3 million in outfitting spares reduction.

Source: Excerpt from the Sixth Annual Acquisition Research Symposium.

Leverage and Exercise Data Rights

Data Rights

A program will become vendor locked when the government does not possess the data rights needed to re-compete.

Assess what you have and what you need.

- Perform a rigorous assessment of your data rights to help;
- Use results to inform your team of future activities to prevent and/or break out of vendor lock situations;
- Utilize a data rights strategy worksheet to assess current data rights and evaluate what additional rights they may need in the future.

Require delivery of non-delivered CDRLs and assert data rights.

- Contracts should contain the appropriate language to require delivery of any non-delivered CDRLs;
- Program offices should ensure they are also fully asserting their data rights for these non-delivered CDRLs.

Leverage and Exercise Data Rights Case Study: ONR SEWIP Program

- Surface Electronic Warfare Improvement Program (SEWIP) was born out of the Multi-Function Electronic Warfare (MFEW) program from the Office of Naval Research (ONR).
- ONR was also able to capture Government Purpose Rights (GPR) on most of the hardware and software.
- In the competition for SEWIP, the Navy provided the actual MFEW GPR data as GFI with the RFP.
- Data rights options were included as part of the Block 2.
- The RFP thus provided the option for offerors to price data rights and included evaluation criteria on that option in the RFP.
- This resulted in all offerors addressing the data rights option directly in the RFP.
- Produced a contract award with Unlimited Data Rights at no cost for all SEWIP Block 2 hardware and software technical data developed under the contract.

Change approach to Systems Engineering

Systems engineering is a fundamental component of breaking vendor lock

Inflexible, proprietary system architectures prohibit technology insertion from third-party vendors.

Develop a common architecture across a product line or similar Programs of Record.

- A common architecture will expand the potential for competition;
- This approach will permit economies of scale and improved learning to enhance prospects for innovation and reduced costs.

Decompose legacy Programs to determine where competition will reap the most benefits.

- Identifying which parts of the system architecture would benefit most from being competed;
- Approach helps programs better understand the potential return on investment.

Hold Competition

etition is widely believed to be the best way to break up a vendor lock sit

The threat of competition can be used as an incentive for the incumbent to improve performance and reduce costs.

Create an alternative, and then compete it	Limit Integrator Role	Share GPR for next competition	Inject OSA through technical insertions	Use Government Labs for Integration
▪ Generate an alterative or competing product; ▪ Enables non-traditional vendors to be considered; ▪ Places additional competitive pressures on the vendor.	▪ Limit the role of the integrator (technology insertion vs. integration).	▪ Exercise GPR rights in support of a follow-on competition; ▪ GPR data may be shared as part of the RFP package.	▪ Inject various OSA features into existing programs.	▪ Government labs have been successful used for integration in the past.

Case Study: Office of the Secretary for Defense, Unmanned Aircraft Systems Control Segment Working Group

- The UCS-WG changed DoD's traditional approach to systems engineering

- The UCS WG funded a limited number of development pilots to demonstrate the UCS architecture.

- The set of Initial Work Packages (IWP) demonstrated how the U.S. Air Force Weather service capability could be integrated into other Service's GCS.

The service was developed by the USAF it was successfully integrated into Navy and Army GCS'. The demonstration resulted in:

- 75% reduction in development and integration costs;
- Integration time of one - three weeks;
- Reduction of nearly $4M in redundant GCS-specific weather services.

Incentivize Good Behavior

Incentives

Provided the proper business case can be made, incentivizing good behavior can be another tool for breaking vendor lock

Vendor-to-vendor cooperation as part of past performance evaluations

- Include cooperation and third-parties as part of the proposal evaluation process;
- Require a bidder to demonstrate how they have historically included other businesses in their previous contracts
- Generate a plan of action for contract execution

Change Contracts

Competition is executed through contracts

The Program Managers Contract Guidebook gives a detailed overview of contractual language that should be included to maximize prospects for open systems and minimize vendor lock.

Incentive fees for delivery, collaboration, and life cycle savings

- Incentive fees and award terms for a vendor locked program to encourage change;
- Having the program office hold the contractor accountable is key.

Include OSA as part of evaluation criteria

- Key OSA technical requirements can be included in source selection evaluation criteria.

Reward reuse of existing products in evaluation Criteria

- A program office can reward reuse of existing products in a vendor's proposal by requiring reuse.

Summary

- Programs can break out of vendor lock by:
  - Establish a Crisis and Create an Environment for Change;
  - Strategically Leveraging and Exercising Data Rights;
  - Changing approach to Systems Engineering;
  - Holding Competition;
  - Incentivizing Good Behavior;
  - Changing Contracts.

- For more information see our website at:
  - https://acc.dau.mil/oa

Challenge

Can a qualified third party – Big or Small . . .

- **add,**
- **modify,**
- **replace,**
- **remove, or**
- **provide support**

for a component of a system, based on open standards and published interfaces.

Summary

- **USD AT&L's memo of 14 Sept. 2010 requires a BCA in concert with the engineering trade analysis prior to Milestone B for OSA and data rights.**
- **OSA can yield modular, interoperable systems that maximize acquisition flexibility;**
- **Data rights decisions made during the initial acquisition of a weapon system can have far-reaching implications over the system's life cycle**
- **The DoD OSA-Data Rights Working Group has developed a BCA Guide and supporting templates to complete this process**
- **This information is available on the *Government-Only* website at: https://acc.dau.mil/bbp**

Questions???